

Baroclinic Ekman spirals

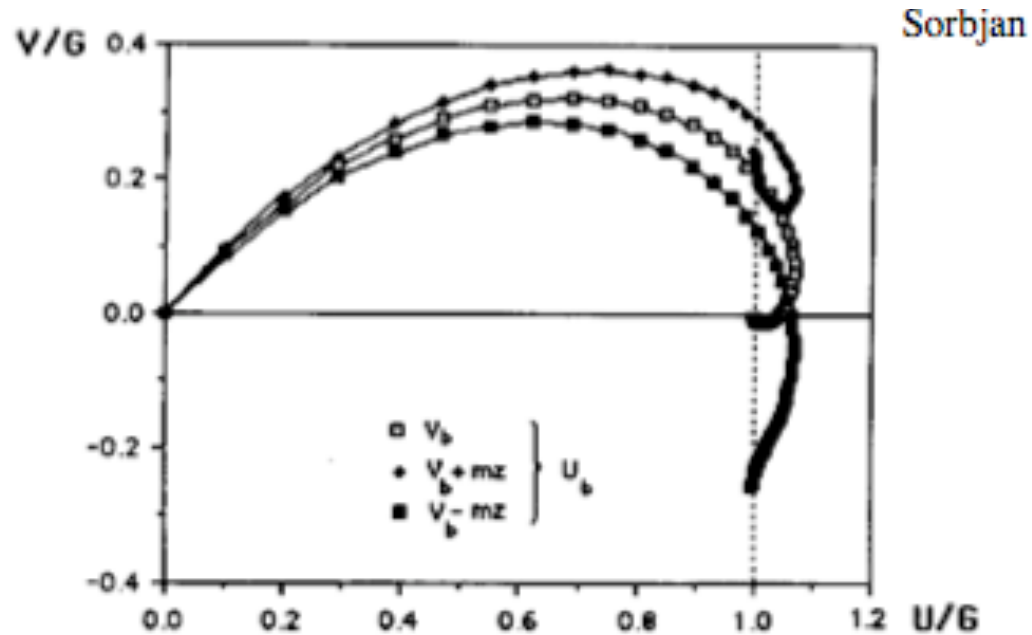
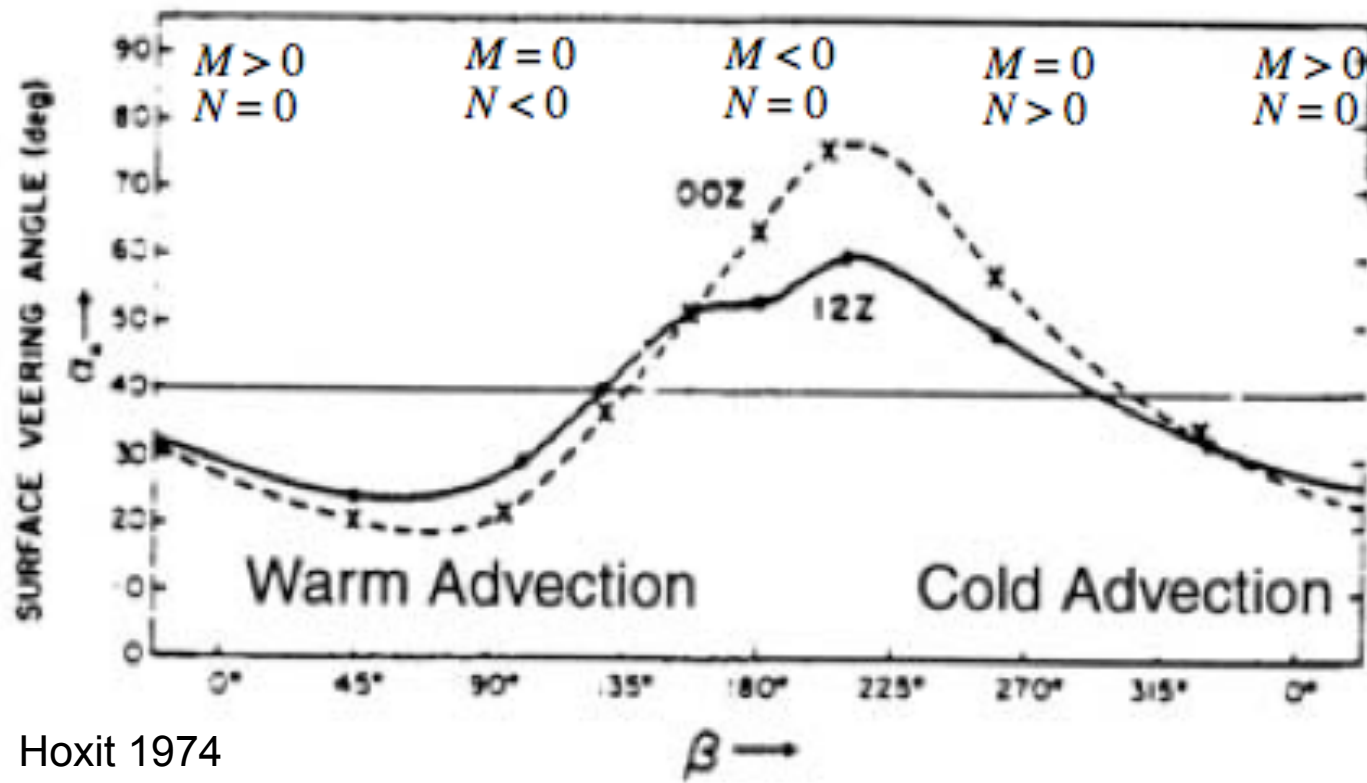
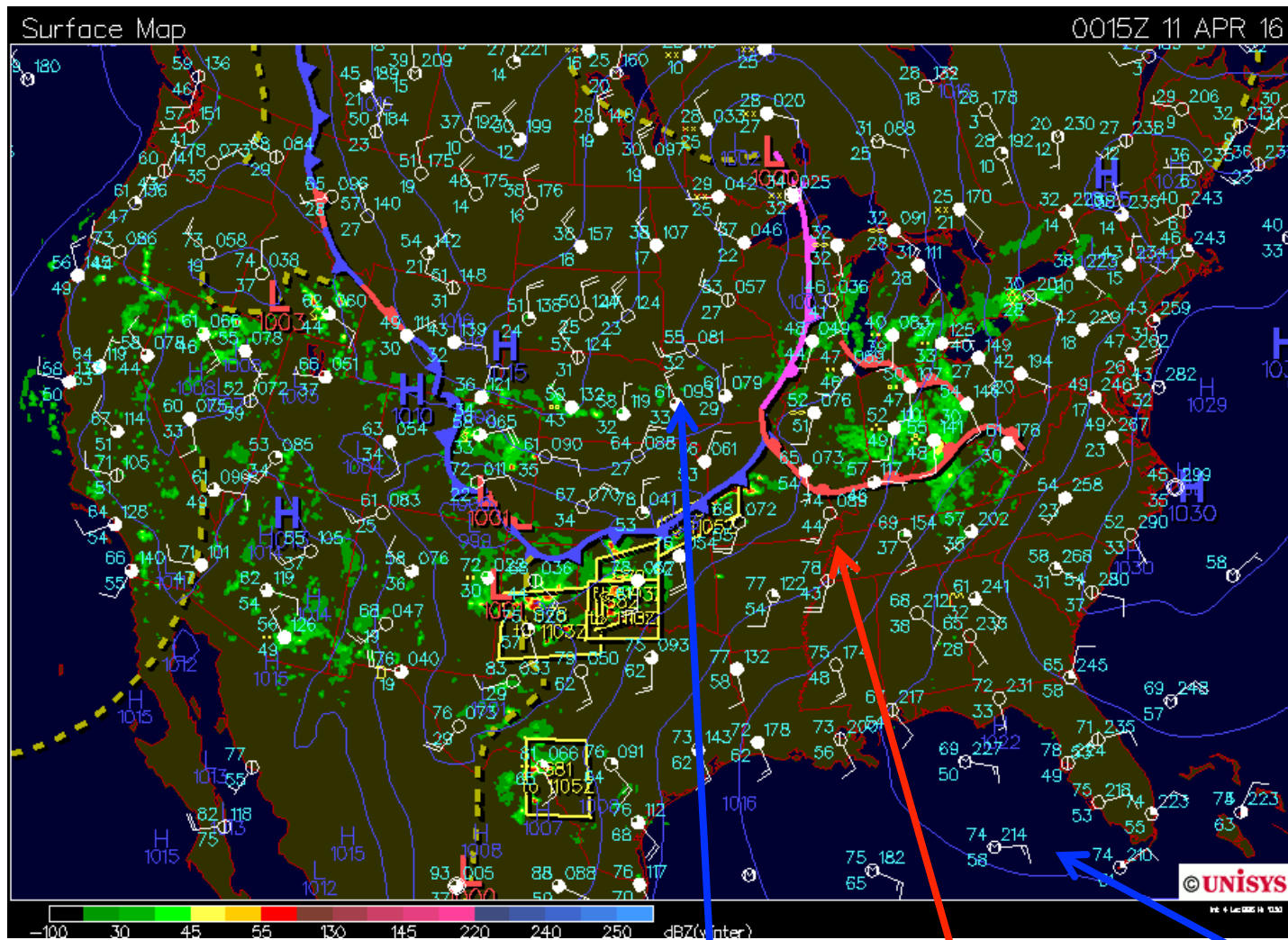


Figure 6.11 Ekman spirals obtained for the baroclinic correction of the V component of the wind velocity, $a = 0.001$, $m = 0.0001$. Points are plotted every 100 m, starting on the surface. U_b , V_b -barotropic components of the wind vector. Dotted line shows directions of the thermal wind vectors.

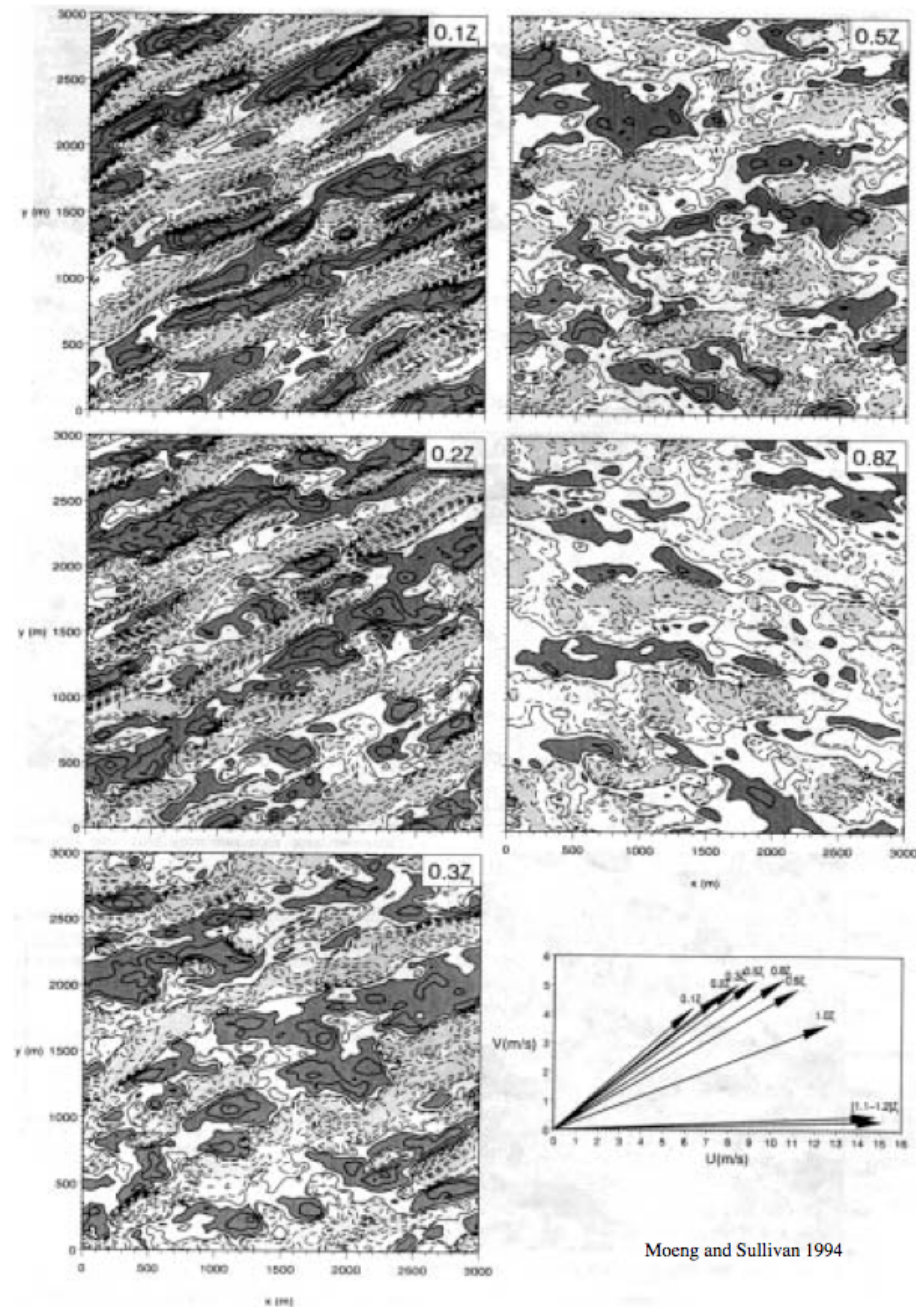
Surface wind crossing angle vs. thermal wind



Hoxit 1974



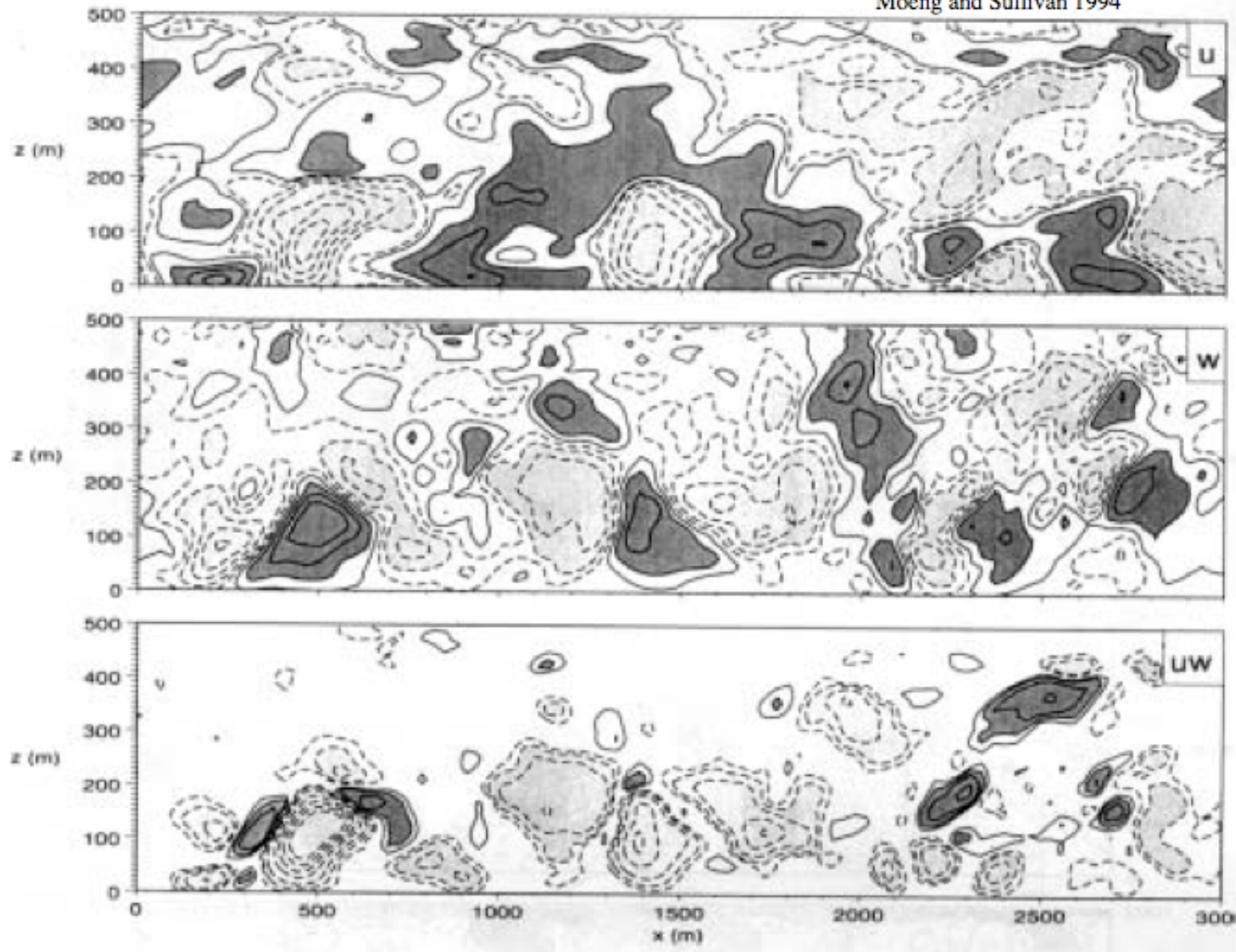
Horizontal sections of u' from LES of shear-driven turbulence



Moeng and Sullivan 1994

LES vertical section of u' in shear-driven PBL

Moeng and Sullivan 1994



Rolls in LES weakly convective PBL

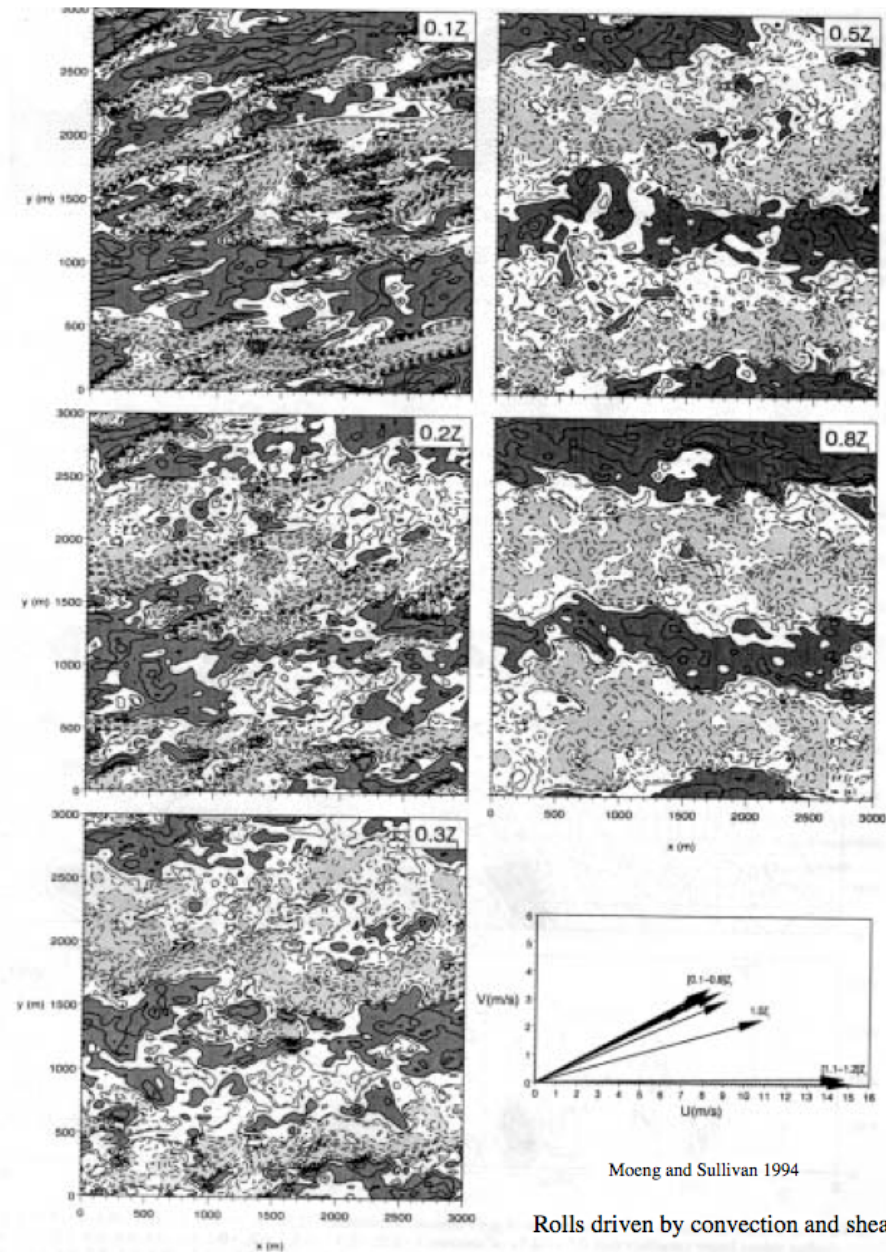


FIG. 15. Views of x - y for simulation SB1 for w field at five height levels and its wind hodograph: contours $(-3, -2.5, -2, -1.5, -1, -0.5, -0.1, 0.1, 0.5, 1, 1.5, 2)$, dark (light) shading values larger (smaller) than 0.5 (-0.5). Some height labels in the wind hodograph are grouped since winds at those levels are about the same.

Convective PBL (Rayleigh-Benard)

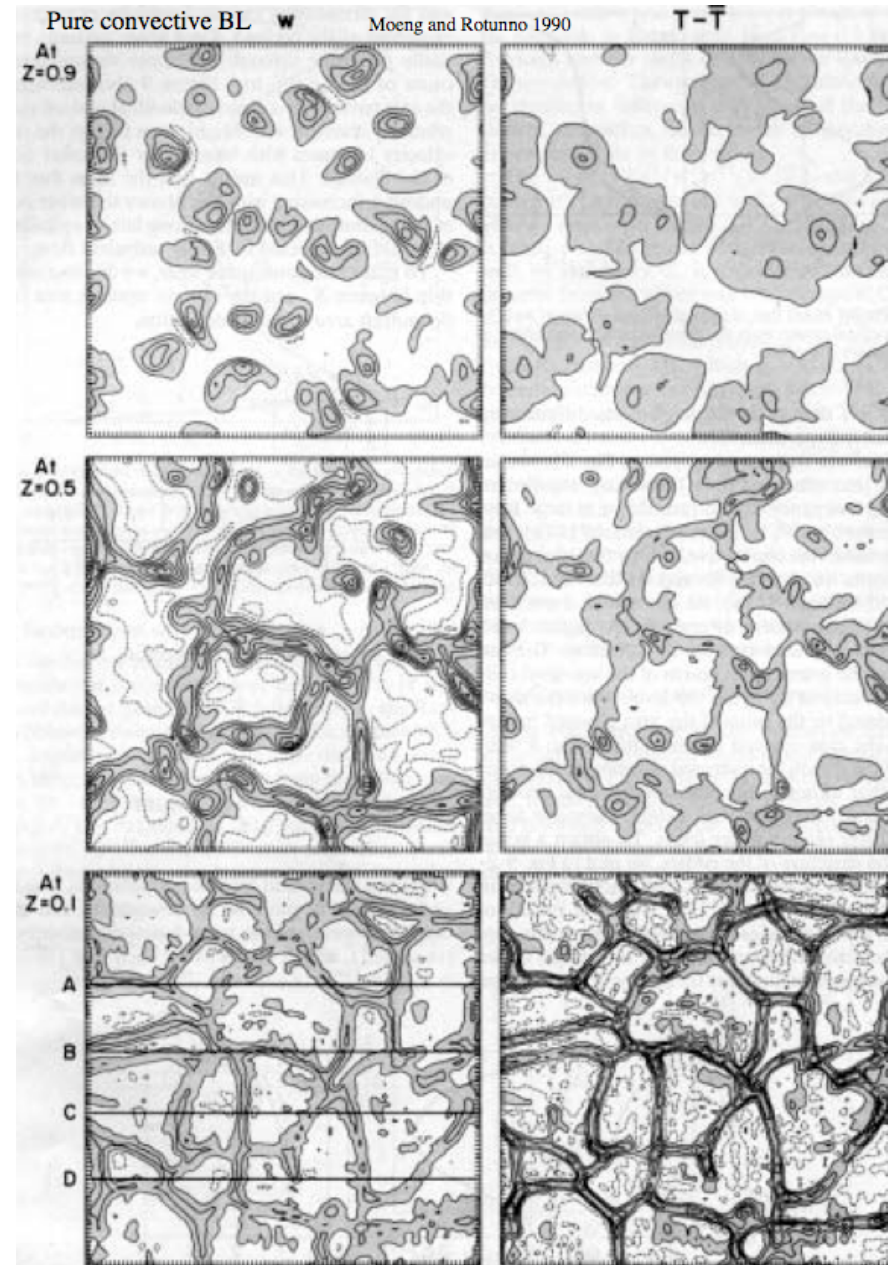


FIG. 8. As in Fig. 3, except for Experiment H. Vertical cross sections through the locations marked A, B, C and D are shown in Fig. 9.

Velocity variance profiles

Moeng and Sullivan 1994

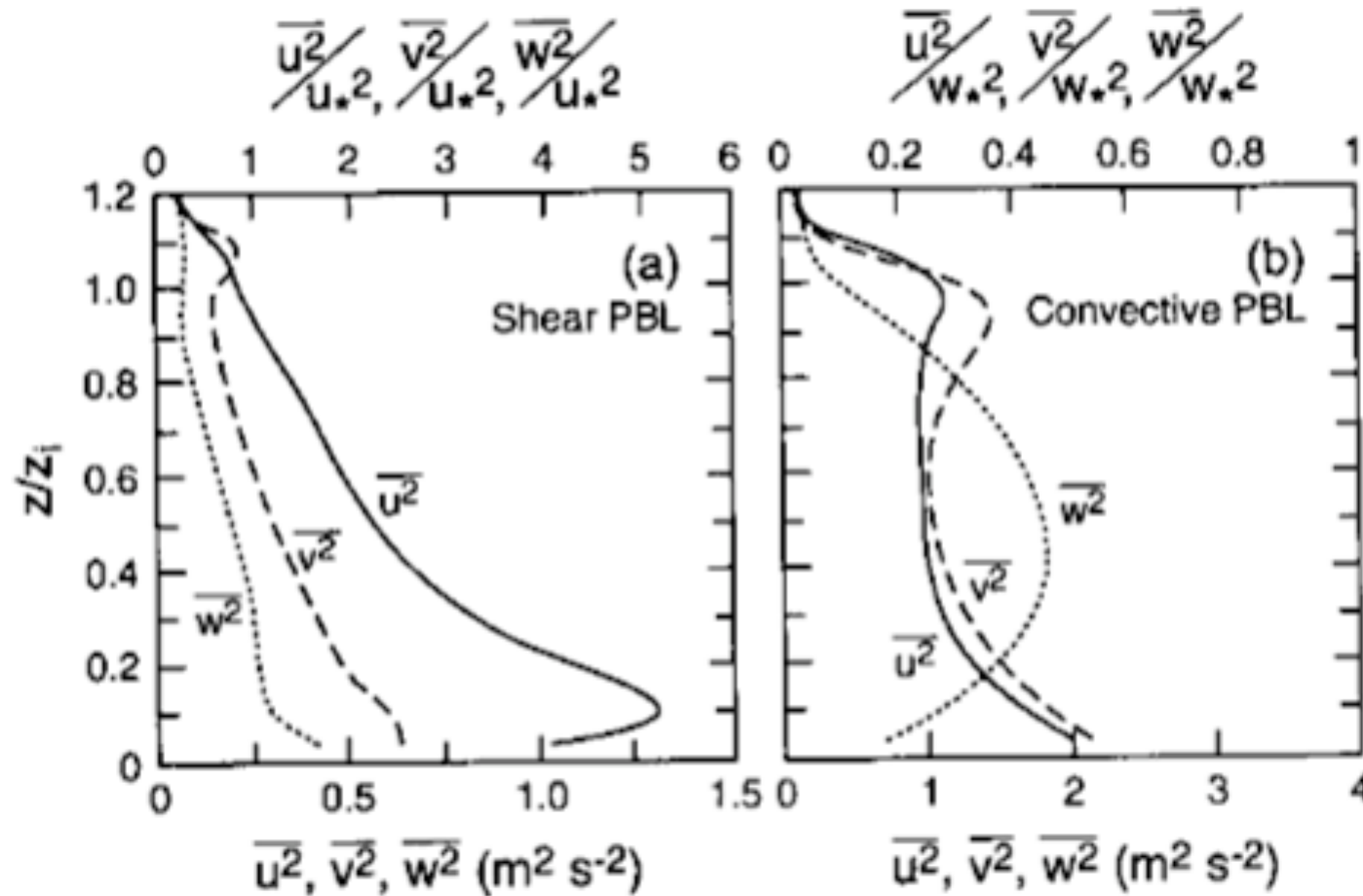


FIG. 9. Vertical distributions of the velocity variances of simulations S and B.

TKE budgets

Moeng and Sullivan 1994

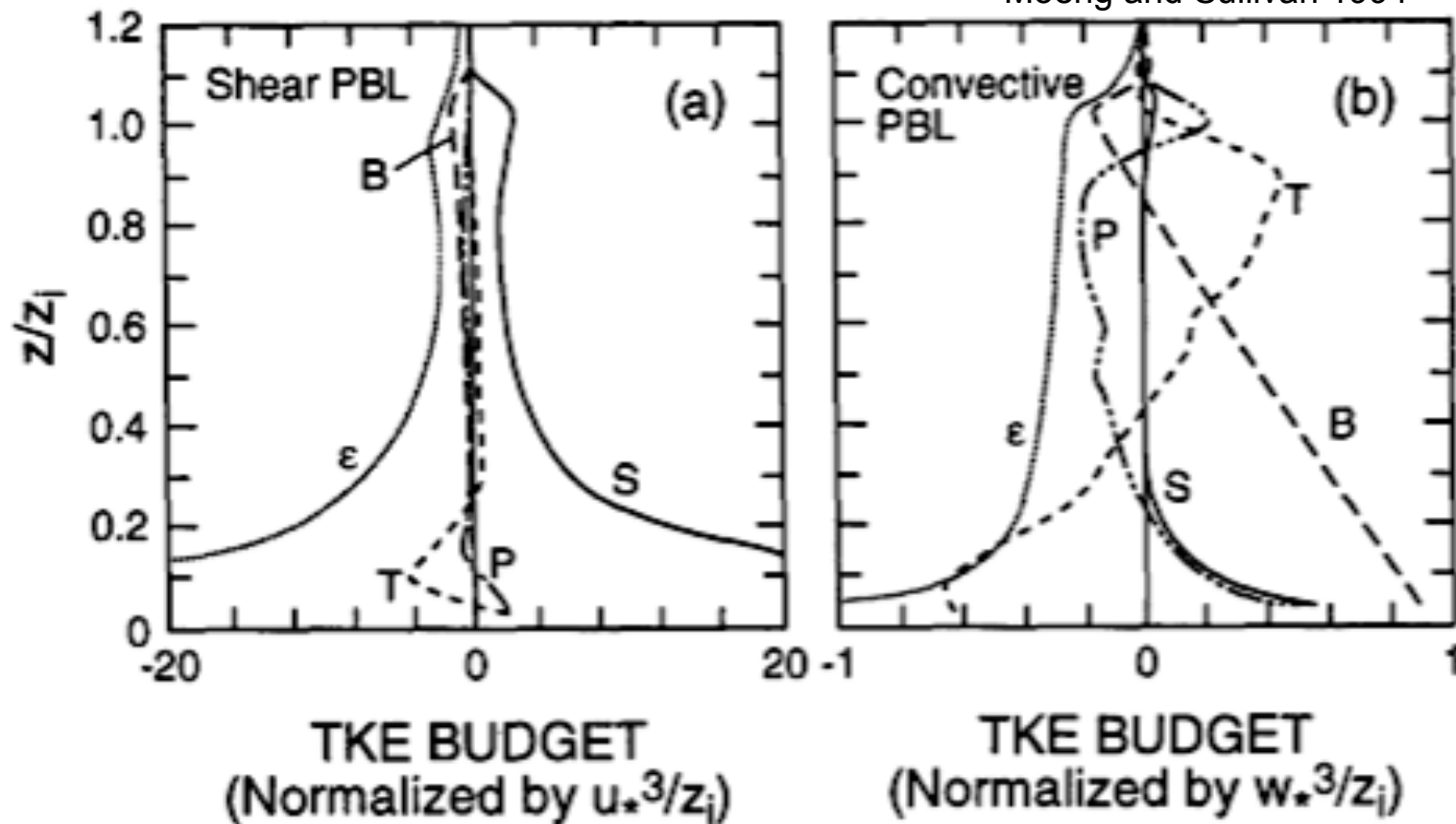
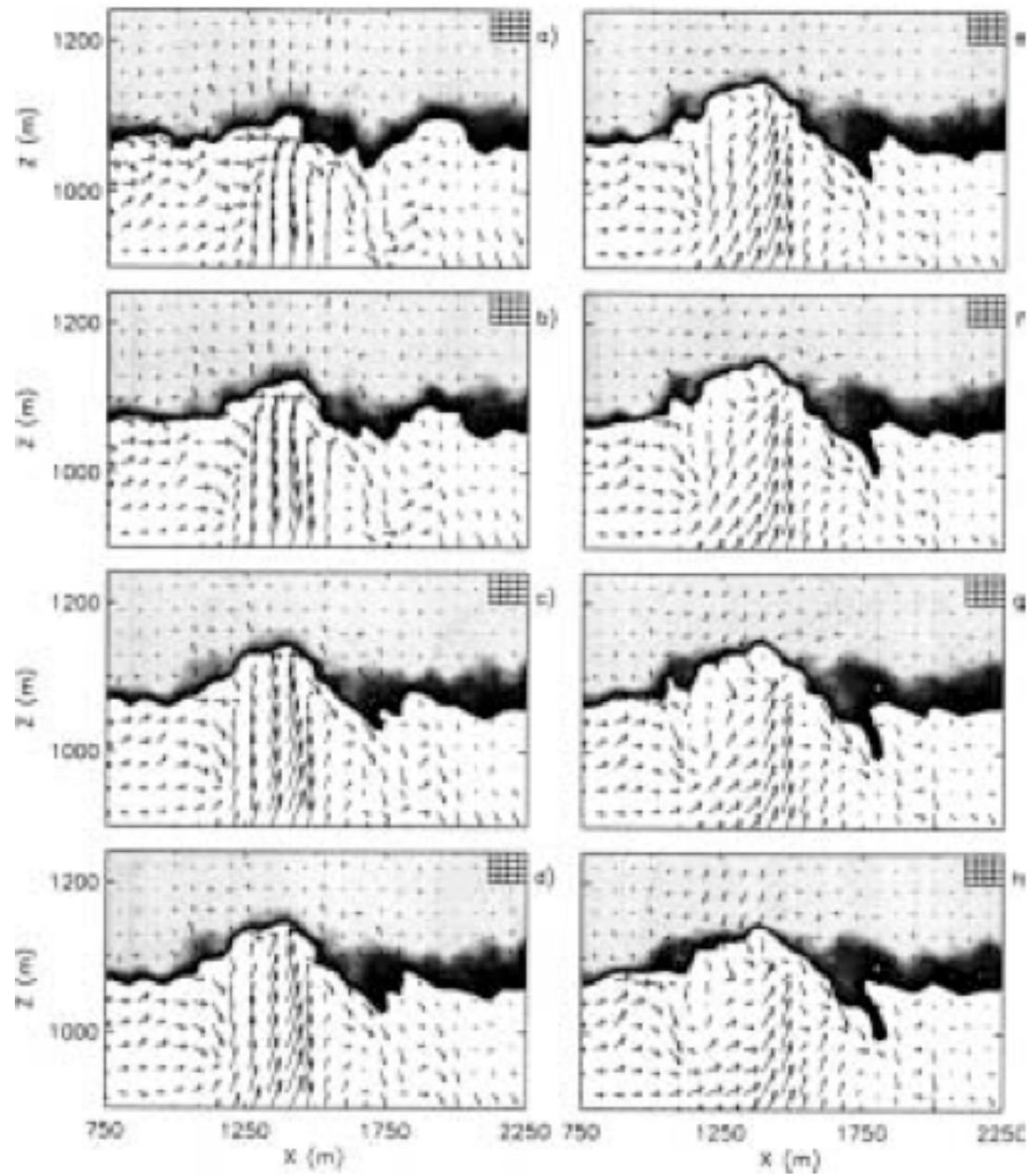


FIG. 11. Vertical distributions of the terms in the TKE budget computed directly from simulations S and B.

LES-simulated entrainment event in a convective PBL



Sullivan et al. 1998

Observational support for DCBL entrainment closure

$$\overline{w'b'}(h) = -0.2B_0$$

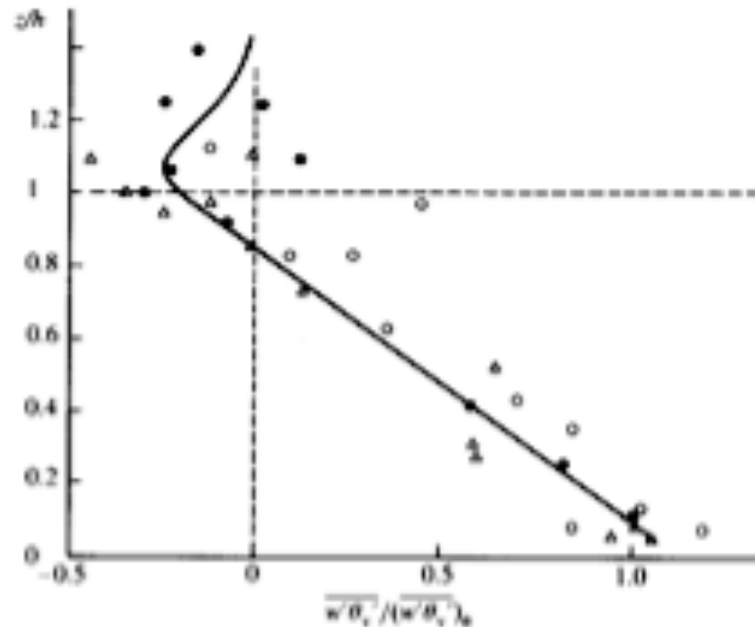


Fig. 6.2 Experimental data on the vertical variation of the virtual heat flux, normalized by its surface value; h is the depth of the mixed layer. Data are for three days from the 1983 ABL experiment; see Stull (1988, Figs. 3.1, 3.2 and 3.3). See also Fig. 6.23 of this volume.